

WHAT IS CLAIMED IS:

1. A beverage bottling plant for filling bottles with a liquid beverage filling material, said beverage bottling plant comprising:

a beverage filling machine comprising a plurality of beverage filling positions, each beverage filling position comprising a beverage filling device for filling bottles with liquid beverage filling material;

said filling devices comprising apparatus being configured to introduce a predetermined flow of liquid beverage filling material into the interior of bottles to a substantially predetermined level of liquid beverage filling material;

said apparatus configured to introduce a predetermined flow of liquid beverage filling material comprising apparatus being configured to terminate the filling of beverage bottles upon liquid beverage filling material reaching said substantially predetermined level in bottles;

a first conveyer arrangement being configured and disposed to move bottles to said beverage filling machine;

a closing station being configured to close filled bottles;

a second conveyer arrangement being configured and disposed to transfer filled bottles from said filling machine to said closing station;

a loading station being configured to load filled bottles into containers;

a third conveyor arrangement being configured and disposed to transfer filled bottles from said closing station to said loading station;

a fourth conveyer arrangement being configured and disposed to remove containers containing filled bottles from said loading station;

said fourth conveyer arrangement comprising:

- a conveyer input and a conveyer output;

- a conveyer frame;

- a chain being configured and disposed to cycle in said frame between said conveyer input and said conveyer output;

- a first guide rod, a second guide rod, and a third guide rod, all being connected to said chain;

- a first sled structure being connected to said chain by said first guide rod at a first location and being configured to travel with said chain and also being configured to move along said first guide rod;

- a second sled structure being connected to said chain by said second guide rod at a second location and being configured to travel with said chain anteriorly of said first sled structure and also being configured to move along said second guide rod;

- a third sled structure being connected to said chain by said third guide rod at a third location and being configured to travel with said chain anteriorly of said second sled structure and also being configured to move along said third guide rod;

- each sled structure comprising:

- a guide box structure being configured to receive and at least partially to surround a container containing filled bottles at said conveyer input and being configured to deposit a container containing filled bottles at said conveyer output;

- a first guide pin being connected to said guide box

structure;

- a toggle-lever arrangement;
- said toggle-lever arrangement comprising:
 - a linkage pin being connected to said guide box structure;
 - said linkage pin having an axis of rotation;
 - said guide box structure being configured to rotate about said axis of rotation of said linkage pin;
 - a first lever having a first end and a second end remote from said first end of said first lever;
 - said first end of said first lever being connected to said linkage pin and being configured to rotate said linkage pin about said longitudinal axis of said linkage pin and thus to effectuate rotation of said guide box structure and a container containing filled bottles;
 - a second lever being configured and disposed to actuate said first lever for the rotation of said guide box structure;
 - said second lever having a first end and a second end remote from said first end;
 - said first end of said second lever being connected to said second end of said first lever;
 - said second lever having a guide pin connected to said second end of said second lever;
 - said first guide pin and said guide pin of said

second lever being configured to be disposed in a first position, at a first distance from one another, adjacent said conveyer input; and

said first guide pin and said guide pin of said second lever being configured to be disposed at a second position, at a second distance from one another, adjacent said conveyer output;

said second distance being greater than said first distance and of sufficient length to effectuate the rotation of said guide box structure and a container containing filled bottles upon said first lever being actuated by said second lever;

and

said toggle-lever arrangement further comprising:

a reset arrangement being configured and disposed to reposition said first guide pin and said guide pin of said second lever of said toggle-lever arrangement from the second position at said conveyer output to the first position at said conveyer input;

said fourth conveyer arrangement further comprising:

a first pair of guide rails being configured and disposed to guide said first sled structure and a first container containing filled bottles to a first location;

a second pair of guide rails being disposed adjacent said first pair of guide rails and being configured and

disposed to guide said second sled structure and a second container containing filled bottles to a second location adjacent said first location;

a third pair of guide rails being disposed adjacent said second pair of guide rails and being configured and disposed to guide said third sled structure and a third container containing filled bottles to a third location adjacent said second location;

each pair of guide rails being disposed stationary in reference to said conveyer frame and each pair of guide rails comprising:

a first guide rail having a guide groove to guide said first guide pin; and

a second guide rail having a guide groove to guide said guide pin of said second lever of a toggle-lever arrangement;

each guide rail comprising an input end disposed adjacent said conveyer input;

each guide rail comprising an output end disposed adjacent said conveyer output;

each first guide rail being configured to guide the first guide pin of the corresponding sled structure in the corresponding first guide rail guide groove;

each second guide rail being configured to guide the guide pin of the second lever of the corresponding toggle-lever arrangement of the

corresponding sled structure in said second guide rail guide groove in the corresponding first guide rail guide groove;

each pair of guide rails thus being configured to guide the corresponding guide box structure and a container containing filled bottles from said conveyer input to a location at said conveyer output; each pair of guide rails further comprising:

a first apparatus being configured and disposed to position said first guide rail and said second guide rail in a first position with respect to one another and also in a second position with respect to one another:

wherein in said first position said first guide rail and said second guide rail are disposed parallel with respect to one another to permit movement of a guide box structure and a package containing filled bottles without rotation from said conveyer input to said conveyer output; and

wherein in said second position said first guide rail and said second guide rail are positioned at a predetermined angle with respect to one another and thus to dispose the input ends of each pair of guide rails with respect to one another at the first distance between the first guide pin and the guide pin of the second lever of the corresponding toggle-lever arrangement and also to dispose the output ends of

each pair of guide rails with respect to one another at the second distance between the first guide pin and the guide pin of the second lever of the corresponding toggle-lever arrangement;

said angle between each pair of guide rails, the first guide pin of the corresponding sled structure, and the guide pin of the second lever of the corresponding toggle-lever arrangement of the corresponding sled structure being configured to effectuate the rotating of the guide box structure and a container containing filled bottles upon transport of the corresponding sled structure and a container containing filled bottles from said conveyer input to said conveyer output;

and

each pair of guide rails yet further comprising:

a second apparatus being configured and disposed to position the output ends of a pair of guide rails at a predetermined distance with reference to said conveyer chain.

2. The beverage bottling plant according to claim 1, wherein: said conveyer frame comprises guide structures configured and disposed to guide said first guide rod, said second guide rod, and said third guide rod in a predetermined plane.

3. The beverage bottling plant according to claim 2, wherein:
said first guide rail and said second guide rail are disposed at an angle between about zero degrees to about ninety degrees to rotate a package guiding structure and a package held by the package guiding structure.

4. The beverage bottling plant according to claim 3, wherein:
said toggle-lever arrangement comprises a thrust crank configured and disposed to rotate a guide box structure and a package containing filled bottles held by the guide box structure.

5. The beverage bottling plant according to claim 4, wherein:
said first apparatus being configured and disposed to position said first guide rail and said second guide rail in a first position and also in a second position with respect to one another, comprises a transmission arrangement configured and disposed to vary the magnitude of the angle between said first guide rail and said second guide rail;

said transmission arrangement for varying the angle between said first guide rail and said second guide rail comprises one of (i), (ii), and (iii), wherein (i), (ii), and (ii) comprise:

- (i) a spindle-and-spindle-nut transmission arrangement;
- (ii) a transmission arrangement configured to be manually actuated; and
- (iii) a transmission arrangement comprising a motor configured and disposed to actuate said transmission

arrangement comprising a motor.

6. The beverage bottling plant according to claim 5, wherein:
 said second apparatus being configured and disposed to position the output ends of a pair of guide rails at a predetermined distance with reference to said conveyer chain comprises a spindle structure disposed transversely with respect said first guide rail and said second guide rail.

7. A container filling plant conveyer arrangement configured to transport packages containing a plurality of containers, such as, bottles and cans, said conveyer arrangement comprising:

- a conveyer input and a conveyer output;
- a conveyer frame;
- a plurality of conveying devices being configured and disposed to cycle in said conveyer frame between said conveyer input and said conveyer output;
- a plurality of guide rods;
- each of said guide rods being connected to said conveying devices and being configured to travel with said conveying devices;
- a plurality of sled structures;
- each of said sled structures being configured to move along the corresponding guide rod;
- each of said sled structures comprising:
 - a guide box structure being configured to receive a

package at said conveyer input and being configured to deposit a package at said conveyer output;

an arrangement being configured and disposed to rotate said guide box structure;

said conveyer arrangement further comprising:

a plurality of pairs of guide rails being disposed stationary with respect to said conveyer frame and being configured to guide one of said plurality of guide box structures and a package held by the corresponding guide box structure from said conveyer input to said conveyer output and to deposit packages adjacent one another in a row transverse to said conveyer frame at said conveyer output;

each of said pairs of guide rails comprising:

a first guide rail and a second guide rail; and

apparatus being configured and disposed to position said first guide rail and said second guide rail in a first position with respect to one another and also in a second position with respect to one another:

wherein in said first position said first guide rail and said second guide rail are disposed parallel with respect to one another to permit movement of one of said plurality of guide box structures and a package held by the corresponding guide box structure without being rotated by said rotating arrangement upon movement of the corresponding guide box structure

and a package from said conveyer input to said conveyer output; and

wherein in said second position said first guide rail and said second guide rail are disposed at an angle with respect to one another to permit rotating of one of said plurality of guide box structures and a package held by the corresponding guide box structure by said rotating arrangement upon movement of the corresponding guide box structure and a package from said conveyer input to said conveyer output.

8. The container filling plant conveyer arrangement according to claim 7, comprising all of: (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), and (k), wherein (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), and (k) comprise:

(a) said plurality of conveying devices comprises a chain configured and disposed to guide said plurality of guide rods;

(b) said conveyer frame comprises guide structures configured and disposed to guide said plurality of guide rods in a predetermined plane;

(c) said first guide rail and said second guide rail are disposed at an angle between about zero degrees to about ninety degrees to rotate a guide box structure and a package held by the guide box structure;

(d) said rotating arrangement comprises a thrust crank configured and disposed to rotate a guide box structure and a

package held by the guide box structure;

(e) a transmission arrangement configured and disposed to vary the magnitude of the angle between said first guide rail and said second guide rail;

(f) said transmission arrangement for varying the angle between said first guide rail and said second guide rail comprises a spindle-and-spindle-nut transmission arrangement;

(g) said transmission arrangement comprises one of (i) and (ii), wherein (i) and (ii) comprise:

(i) a transmission arrangement configured to be manually actuated; and

(ii) a transmission arrangement comprising a motor configured and disposed to actuate said transmission arrangement comprising a motor;

(h) apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said conveyer input with reference to said conveyer frame;

(i) said apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said conveyer input with reference to said conveyer frame comprises a spindle structure disposed transversely with respect said first guide rail and said second guide rail;

(j) a first guide box structure and a second guide box structure; and

two pairs of guide rails comprising a first pair of guide rails and a second pair of guide rails;

said first pair of guide rails and said second pair of guide rails are disposed in mirror-image arrangement with respect to one another; and

(k) a first guide rod of said plurality of guide rods and a first guide box structure and a package held by the first guide box structure are configured to be guided by said first pair of said two pairs of guide rails; and

a second guide rod of said plurality of guide rods and a second guide box structure and a package held by the second guide box structure are configured to be guided by said second pair of said two pairs of guide rails.

9. The container filling plant conveyer arrangement according to claim 7, comprising at least one of: (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), and (k), wherein (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), and (k) comprise:

(a) said plurality of conveying devices comprises a chain configured and disposed to guide said plurality of guide rods;

(b) said conveyer frame comprises guide structures configured and disposed to guide said plurality of guide rods in a predetermined plane;

(c) said first guide rail and said second guide rail are disposed at an angle between about zero degrees to about ninety degrees to rotate a guide box structure and a package held by the guide box structure;

(d) said rotating arrangement comprises a thrust crank

configured and disposed to rotate a guide box structure and a package held by the guide box structure;

(e) a transmission arrangement configured and disposed to vary the magnitude of the angle between said first guide rail and said second guide rail;

(f) a transmission arrangement configured and disposed to vary the magnitude of the angle between said first guide rail and said second guide rail;

said transmission arrangement for varying the angle between said first guide rail and said second guide rail comprises a spindle-and-spindle-nut transmission arrangement;

(g) a transmission arrangement configured and disposed to vary the magnitude of the angle between said first guide rail and said second guide rail;

said transmission arrangement for varying the angle between said first guide rail and said second guide rail comprises a spindle-and-spindle-nut transmission arrangement;

said transmission arrangement comprises one of (i) and (ii), wherein (i) and (ii) comprise:

(i) a transmission arrangement configured to be manually actuated; and

(ii) a transmission arrangement comprising a motor configured and disposed to actuate said transmission arrangement comprising a motor;

(h) apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said

conveyer input with reference to said conveyer frame;

(i) apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said conveyer input with reference to said conveyer frame;

said apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said conveyer input with reference to said conveyer frame comprises a spindle structure disposed transversely with respect said first guide rail and said second guide rail;

(j) a first guide box structure and a second guide box structure; and

two pairs of guide rails comprising a first pair of guide rails and a second pair of guide rails;

said first pair of guide rails and said second pair of guide rails are disposed in mirror-image arrangement with respect to one another; and

(k) a first guide box structure and a second guide box structure; and

two pairs of guide rails comprising a first pair of guide rails and a second pair of guide rails;

a first guide rod of said plurality of guide rods and a first guide box structure and a package held by the first guide box structure are configured to be guided by said first pair of said two pairs of guide rails; and

a second guide rod of said plurality of guide rods and a second guide box structure and a package held by the second

guide box structure are configured to be guided by said second pair of said two pairs of guide rails.

10. A container filling plant conveyer arrangement configured to transport packages containing a plurality of containers, such as, bottles and cans, said conveyer arrangement comprising:

- a conveyer input and a conveyer output;

- a conveyer frame;

- a conveying device being configured and disposed to cycle in said conveyer frame between said conveyer input and said conveyer output;

- a plurality of guides;

- each of said guides being connected to said conveying device and being configured to travel with said conveying device;

- a plurality of package guiding structures connected to said conveying device and being configured to receive a package at said conveyer input and being configured to deposit a package at said conveyer output;

- each package guiding structure comprising:

- an arrangement being configured and disposed to rotate said package guiding structure; and

- a guide arrangement being configured and disposed to guide a corresponding one of said plurality of package guiding structures and a package held by the package guiding structure from said conveyer input to said conveyer output and to deposit packages adjacent to one another in

a row transverse to said conveyer frame at said conveyer output;

said guide arrangement also being configured and disposed to permit movement of one of said plurality of package guiding structures and a package held by the package guiding structure without being rotated by said rotating arrangement upon movement of the package guiding structure and a package from said conveyer input to said conveyer output; and

said guide arrangement further being configured and disposed to permit movement of one of said plurality of package guiding structures and a package held by the package guiding structure and being rotated by said rotating arrangement upon movement of the package guiding structure and a package from said conveyer input to said conveyer output.

11. The container filling plant conveyer arrangement according to claim 10, wherein:

said conveying device comprises a chain configured and disposed to guide said plurality of guides.

12. The container filling plant conveyer arrangement according to claim 11, wherein:

said conveyer frame comprises guide structures configured and disposed to guide said plurality of guides in a predetermined plane.

13. The container filling plant conveyer arrangement according to claim 12, wherein:

said guide arrangement comprises a first guide rail and a second guide rail;

said first guide rail and said second guide rail are disposed at an angle between about zero degrees to about ninety degrees to rotate a package guiding structure and a package held by the package guiding structure.

14. The container filling plant conveyer arrangement according to claim 13, wherein:

said rotating arrangement comprises a thrust crank configured and disposed to rotate one of said plurality of package guiding structures and a package held by the package guiding structure.

15. The container filling plant conveyer arrangement according to claim 14, comprising:

a transmission arrangement configured and disposed to vary the magnitude of the angle between said first guide rail and said second guide rail.

16. The container filling plant conveyer arrangement according to claim 15, wherein:

said transmission arrangement for varying the angle between said first guide rail and said second guide rail comprises a spindle-and-spindle-nut transmission arrangement.

17. The container filling plant conveyer arrangement according to claim 16, wherein:

said transmission arrangement comprises one of (a) and (b), wherein (a) and (b) comprise:

(a) a transmission arrangement configured to be manually actuated; and

(b) a transmission arrangement comprising a motor configured and disposed to actuate said transmission arrangement comprising a motor.

18. The container filling plant conveyer arrangement according to claim 17, comprising:

apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said conveyer input with reference to said conveyer frame;

said apparatus configured and disposed to swing said first guide rail and also said second guide at the ends closest to said conveyer input with reference to said conveyer frame comprises a spindle structure disposed transversely with respect said first guide rail and said second guide rail.

19. The container filling plant conveyer arrangement according to claim 18, comprising:

a third guide rail and a fourth guide rail;

said third guide rail and said fourth guide rail are disposed in mirror-image arrangement with respect to said first guide rail and said

second guide rail.

20. The container filling plant conveyer arrangement according to claim 19, wherein:

a first package guiding structure and a package held by said first package guiding structure are configured to be guided by said first guide rail and said second guide rail from said conveyer input to said conveyer output to deposit a package held by said first package guiding structure at a first location at said conveyer output; and

a second package guiding structure and a package held by said second package guiding structure are configured to be guided by said third guide rail and said fourth guide rail from said conveyer input to said conveyer output to deposit a package held by said second package guiding structure at a second location and in a row transverse to said conveyer frame adjacent a package deposited by said first package guiding structure at said conveyer output.